REMARKS

New claims 35 and 36 are added. Claims 35 and 36 incorporate the subject matter of claims 1 and 2 that corresponds to the elected invention and species.

Claims 3 and 34 are amended to be dependent from new claim 35. Claims 3, 8, 17, 22, and 34 are also amended to clarify the claim language.

Claims 1 and 2 are cancelled.

Claims 5, 6, 9, 11, 12, 14, 15, and 18 – 20 are amended to remove the term "preventing."

The rejection of claims 5 – 21 and 26 – 33 under 35 USC 112, first paragraph is respectfully traversed. First, the term "preventing has been removed from the claims. Applicants note that the term "treating" broadly encompasses various methods of achieving a beneficial effect, including administering a treatment prior to onset of a condition in order to prevent the condition.

With regard to the types of disorders treated by the claimed invention, the specification describes the link between the role of nicotinic acetylcholine receptor and the disorders that can be treated. For example, pages 1 – 4 of the specification detail the connection between activation of $\alpha_4\beta_2$ subtype receptors in the central nervous system and increased cerebral blood flow. The specification also details the importance of $\alpha_4\beta_2$ subtype receptors in cognition, such as attention, learning, memory, and recognition.

A declaration from Dr. Yoshihiro Tani accompanies this amendment. In the declaration, Dr. Tani details comparative research between ABT-418, (-)-

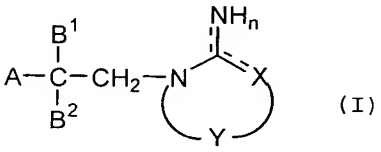
nicotine, and the compounds of the claimed invention. As noted on page 4 of the declaration, ABT-418 is a selective nicotinic agonist that caused significant improvement in learning and memory for human patients in the early stages of Alzheimer's disease. While ABT-418 is no longer being studied for other reasons, ABT-418 is a standard compound used for evaluating selective agonist activity at nicotinic acetylcholine receptor sites. Table 1 on page 4 of the declaration demonstrates the effectiveness of 6 representative compounds of the claimed invention in producing nicotinic receptor activity and compares the activity of the claimed compounds to that of ABT-418 and (-)-nicotine. The data in table 1 is based on an in vivo study of selective nicotinic receptor activity in mouse brains. At a minimum, the data in table 1 shows the comparable effectiveness of the claimed compounds in treatment of Alzheimer's disease and for improving learning and memory. More generally, the results in the declaration provide further support for the effectiveness of the claimed compounds as nicotinic receptor agonists.

With regard to the diversity of the claimed compounds, the specification provides support for the effectiveness of the claimed compounds as nicotinic receptor agonists. Additionally, the declaration of Dr. Tani provides further support for 6 representative compounds of the claimed invention. Applicants believe that the specification provides adequate support for the effectiveness of all of the claimed compounds as nicotinic receptor agonists.

The rejection of claims 1 – 34 under 35 USC 112, second paragraph as being indefinite is respectfully traversed. Claims 1 and 2 are cancelled. New claims 35 and 36 incorporate the Examiner's suggestions with regard to claims 1

and 2. Also, claims 3, 8, 17, 22, and 34 are amended in accordance with the Examiner's suggestions.

Claims 1, 3 – 9, 14 – 18, 22 – 25, and 34 were rejected under 35 USC 102(a), (b), or (e) over 1) Asaka et al., WO 01/10878; 2) Taveras et al., US Patent 6,372,747; 3) Dimaio et al., Chem. Abstract 130:4092; 4) Ulhaq et al., Chem. Abstract 126:246419; 5) Dominguez et al., Chem. Abstract 126:139500; 6) Ulhaq et al., Chem. Abstract 125: 25771; 7) Boehm et al., Chem Abstract 120:54763; and 8) Wei et al., US Patent 4,431,653. These rejections are respectfully traversed. Claim 1 has been cancelled. Claim 35 recites compounds corresponding to the formula



(I)

where B^1 and B^2 are hydrogen atoms, A is an optionally substituted aryl group or an optionally substituted heterocyclic group, the dotted line shows either the presence or absence of a bond, n is 1 or 2, and the group –Y-X- is -CH_2-CH_2-NH- or -$C(R^7)$=$C(R^8)$-N=, wherein R^7 and R^8 are independently selected from the group consisting of hydrogen atom, halogen atom, optionally substituted alkyl group, optionally substituted aryl group, and optionally substituted heterocyclic group.

Note that the compounds of the claimed invention all have only 2 –CH_2- groups between the A group and the nitrogen heterocycle group. By contrast, all of the compounds in the references cited by the Examiner have 3 or more -CH_2- groups in the corresponding location. For example, the compound in the Asaka

et al. CAPLUS abstract (134:163283) has 4 -CH_2- groups in the corresponding location. Similarly, the compounds of Preparative Examples 53 – 55, 103, and 105 of Taveras et al. all have 3 -CH_2- groups in the corresponding location. None of the references provided by the Examiner have 2 -CH_2- groups in the corresponding location, as required by the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

The provisional rejection of claims 1 – 34 over claims 1 – 16 of copending Application No. 09/933,717 is respectfully traversed. Based on the narrower scope of claims 35 and 36, it is believed that this provisional rejection is not appropriate. Additionally, in support of this rejection, the Examiner asserts that the compounds in Application No. 09/933,717 differ only by a -CH_2- group, and thus are obvious as "structural homologs". Applicants note that the Examiner has previously issued a restriction requirement in this case. In that restriction requirement, the compounds of group II and group III, for example, differed by only a single -CH_2- group. The Examiner upheld this restriction over Applicant's detailed argument and in spite of the fact that the restriction was applied to compounds within a single claim. The Examiner noted that compounds containing such diverse groups do not form a single inventive concept within the meaning of 35 USC 121 because a reference that anticipates or renders obvious one of the groups would not necessarily render obvious another group. (page 2 of paper No. 6) Given that the Examiner appears to have already held that a single -CH_2- group constitutes a patentably distinct difference, Applicants respectfully submit that the provisional double patenting rejection is improper. Reconsideration and withdrawal of the rejection are requested.

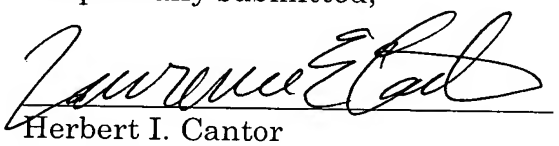
In view of the foregoing amendments and remarks, the application is respectfully submitted to be in condition for allowance, and prompt, favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #100598.50520US).

Respectfully submitted,

January 8, 2004



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